REMARKS

Applicants acknowledge receipt of the Office Action dated March 22, 2004. In that action the Examiner 1) rejected claims 1, 9-10 and 17-20 as allegedly anticipated by Thompson (U.S. Pat. No. 6,646,441); 2) rejected claims 29-31 as alleged anticipated by Moore (U.S. Pat. Pub. No. 20040217763); 3) rejected claims 2-5, 11, 14, 21 and 24 as allegedly obvious over Thompson in view of Prammer (U.S. Pat. No. 6,268,726); 4) rejected claims 2-8, 11, 14, 21 and 24 as allegedly obvious over Thompson in view of Nichols (U.S. Pat. No. 6,294,917); and 5) objected to claims 12, 13, 15-16, 22,-23 and 26 as being dependent on a rejected base claim, but otherwise allowable.

With this Office Action Response, Applicants amend claims 1, 3, 6, 10-12, 14-15, 20-22, 24-25 and 29, and cancel claims 2, 4-5, 7-8, 27-28 and 32-41. Thus, the pending claims are 1, 3, 6, 9-26 and 29-31. Reconsideration is respectfully requested.

I. EFFECTIVELY ALLOWED CLAIMS

With this Response, Applicants re-write claims 12, 15, 22 and 25 into independent form, including the limitations of their respective base claims and intervening claims. It is noted that these claims already contained these limitations by virtue of their previous dependency. Thus claims 12, 15, 22 and 25, and their dependents 13, 16, 23, and 26 respectively, should be in a condition for allowance.

II. CLAIM REJECTIONS

A. Claim 1

Claim 1 stands rejected as allegedly obvious over Thompson. Applicants amend claim 1 to more clearly define over the operational aspects of Thompson.

Thompson is directed to a well logging system for determining resistivity using multiple transmitter-receiver groups operating at three frequencies. (Thompson Title). Thompson, however, appears to be silent as the mechanism by which the three resonant frequencies are obtained.

Claim 1, by contrast, specifically recites "sending a control signal to a relay across a signal line that couples an antenna signal to the transmitting antenna, thereby selectively tuning the transmitting antenna... ." Thompson does not teach, expressly or impliedly, sending a control signal to a relay across a signal line that couples an antenna signal to the transmitting antenna, thereby selectively tuning the transmitting antenna.

Based on the foregoing, Applicants respectfully submit that claim 1, and all claims which depend from claim 1 (claims 3, 6 and 9) should be allowed. Applicants cancel claim 2, 4-5 and 7-8 as these limitations are to some extent, but not completely, incorporated in claim 1.

B. Claim 10

Claim 10 stands rejected as allegedly anticipated by Thompson. Applicants amend claim 10 to more clearly define over Thompson.

Thompson is directed to a well logging system for determining resistivity using multiple transmitter-receiver groups operating at three frequencies. (Thompson Title). Thompson, however, appears to be silent as the mechanism by which the three resonant frequencies are obtained.

Claim 10, by contrast, specifically recites, "an antenna tuning circuit comprising a relay having a coil, the coil coupled to a signal line that carries signals to the transmitting antenna, wherein the antenna tuning circuit is selectively tunable to obtain a plurality of resonant frequencies." Thompson does not teach, expressly or impliedly, an antenna tuning circuit comprising a relay having a coil, the coil coupled to a signal line that carries signals to the transmitting antenna.

Based on the foregoing, Applicants respectfully submit that claim 10, and all claims which depend from claim 10 (claims 11, 14 and 17-19) should be allowed. Applicants amend claims 11 and 14 to reflect the limitations to claim 10, and not to define over any cited art.

C. Claim 20

Claim 20 stands rejected as allegedly anticipated by Thompson. Applicants amend claim 10 to more clearly define over Thompson.

Thompson is directed to a well logging system for determining resistivity using multiple transmitter-receiver groups operating at three frequencies. (Thompson Title). Thompson, however, appears to be silent as the mechanism by which the three resonant frequencies are obtained.

Claim 20, by contrast, specifically recites, "an antenna tuning circuit comprising a relay having a coil, the coil coupled to a signal line that carries signals to a first transmitting antenna, wherein the antenna tuning circuit is selectively tunable to obtain a plurality of resonant frequencies." Thompson does not teach, expressly or impliedly, an antenna tuning circuit

comprising a relay having a coil, the coil coupled to a signal line that carries signals to a first transmitting antenna.

Based on the foregoing, Applicants respectfully submit that claim 20, and all claims which depend from claim 20 (claims 21 and 24) should be allowed. Applicants amend claims 21 and 24 to reflect the limitations to claim 10, and not to define over any cited art.

D. Claim 29

Claim 29 stands rejected as allegedly anticipated by Moore. Applicants amend claim 29 to more clearly define over the system of Moore where the receiving antennae are configured to resonate at the frequencies transmitted by the transmitting antennae.

Moore is directed to a loop antenna circuit useful in a subterranean tool. (Moore Title). In Moore, the transmitting antennas generate electromagnetic waves simultaneously comprising a plurality of frequencies.

> TX1122 and TX2128 are individually controllable to selective radiate an electromagnetic wave **comprising a plurality of predetermined interrogation frequency components**.

(Moore Paragraph [0032] (emphasis added)). Correspondingly, the receiving antennae are configured to detect each of the frequencies in interrogation signal.

> Receiver antenna RX1124 and RX2126 are each adapted to detect bands of frequencies centered on **each** of the plurality of interrogation frequencies.

(*Id.* (emphasis added)).

> Tuning network 204 cooperates with antenna 202 to achieve **"simultaneous tuning" at a plurality of interrogation frequencies.**

(Moore Paragraph [0036] (emphasis added)).

Claim 29, by contrast, specifically recites, "operating a logging tool in a borehole, the logging tool having a first and second antennas; transmitting an electromagnetic wave from the first antenna; and tuning the second antenna to resonate at other than the frequency of the electromagnetic wave transmitted by the first antenna." Moore does not teach or fairly suggest such a system. In fact, Moore teaches precisely the opposite, that receiving antennae should be tuned to resonate at each frequency of the interrogating signal.

Based on the foregoing, Applicants respectfully submit that claim 29, and all claims which depend from claim 29 (claims 30 and 31) should be allowed.

III. CLAIM CANCELLATIONS

With this Response, Applicants cancel previously withdrawn claims 27-28 and 32-41. These cancellations are made without prejudice to later asserting these claims, such as in a divisional application.

IV. CONCLUSION

Applicants respectfully request reconsideration and allowance of the pending claims and a timely Notice of Allowance be issued in this case. If the Examiner feels that a telephone conference would expedite the resolution of this case, he is respectfully requested to contact the undersigned.

In the course of the foregoing discussions, Applicants may have at times referred to claim elements in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other elements can be ignored or dismissed. The claims must be viewed as a whole, and each element of the claims must be considered when determining the patentability of the claims.

If any fees are inadvertently omitted or if any additional fees are required or have been overpaid, please appropriately charge or credit those fees to Conley Rose, P.C. Deposit Account Number 03-2769.

Respectfully submitted,

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